

WHAT IS CLAIMED IS:

1. A polycrystallization mask for laser illumination for converting amorphous silicon into polysilicon, the mask comprising:

a plurality of first transmissive areas having a first transmittance;

5 a plurality of second transmissive areas having a second transmittance different from the first transmittance; and

an opaque area,

wherein the first and the second transmissive areas have shapes of slits having width and length.

10 2. The mask of claim 1, wherein the first transmissive areas include a translucent film.

3. The mask of claim 2, wherein the second transmissive areas are openings.

15 4. The mask of claim 1, wherein the slits including the first and the second transmissive areas are arranged with a transverse pitch in a length direction and with a longitudinal pitch in a width direction to form a plurality of slit columns arranged with a second pitch substantially equal to half of the transverse pitch.

5. The mask of claim 4, wherein the slits in adjacent two of the slit columns are offset by a half of the longitudinal pitch.

20 6. The mask of claim 5, wherein each slit column includes either of the first transmissive areas and the second transmissive areas and the slit columns include first and second columns adjacent to each other and including the first transmissive areas and third and fourth columns adjacent to each other and including the second transmissive areas.

25 7. The mask of claim 6, wherein the first and the second columns and the third and the fourth columns are alternately arranged in the length direction.

8. A polycrystallization mask for laser illumination for converting amorphous silicon into polysilicon, the mask comprising:

30 a plurality of first areas including a plurality of first slit portions having a first transmittance and a first opaque portion; and

a plurality of second areas including a plurality of second slit portions having a second transmittance and a second opaque portion.

9. The mask of claim 8, wherein the first areas and the second areas are alternately arranged.
10. The mask of claim 8, wherein the first slit portions include a translucent film.
- 5 11. The mask of claim 10, wherein the second slit portions include openings.
12. The mask of claim 8, wherein the first and the second slit portions are arranged with a first pitch in a first direction and the first or the second slit portions in each of the first and the second areas include fifth and sixth slit portions offset with a half of the first pitch in a second direction.
- 10 13. The mask of claim 8, wherein the first or the second slit portions in each of the first and the second areas form two slit columns.
14. A method of manufacturing a thin film transistor, the method comprising:
- 15 forming an amorphous silicon thin film on an insulating substrate;
- forming a polysilicon thin film by irradiating the amorphous silicon thin film with a laser beam with an exposure mask including a plurality of slit portions, the slit portions having at least two transmittances, and crystallizing the amorphous silicon thin film;
- 20 patterning the polysilicon thin film to form a semiconductor layer;
- forming a gate insulating layer on the semiconductor layer;
- forming a gate electrode on the gate insulating layer opposite the semiconductor layer;
- implanting impurities into the semiconductor layer to form a source region
- 25 and a drain region opposite each other with respect to the gate electrode; and
- forming a source electrode and a drain electrode electrically connected to the source region and the drain region, respectively.
15. The method of claim 14, further comprising:
- forming a passivation layer having a contact hole exposing the drain
- 30 electrode; and
- forming a pixel electrode connected to the drain electrode via the contact hole.

16. The method of claim 14, wherein the slit portions comprises a plurality of first slit portions having a first transmittance and a plurality of second slit portions having a second transmittance and the exposure mask comprises a plurality of first areas including the first slit portions and a plurality of second areas including the second slit portions.

17. The mask of claim 16, wherein the first areas and the second areas are alternately arranged.

18. The mask of claim 16, wherein the first slit portions include a translucent film and the second slit portions include openings.

19. The mask of claim 16, wherein the first and the second slit portions are arranged with a first pitch in a first direction and the first or the second slit portions in each of the first and the second areas include fifth and sixth slit portions offset with a half of the first pitch in a second direction.

20. The mask of claim 16, wherein the first or the second slit portions in each of the first and the second areas form two slit columns.